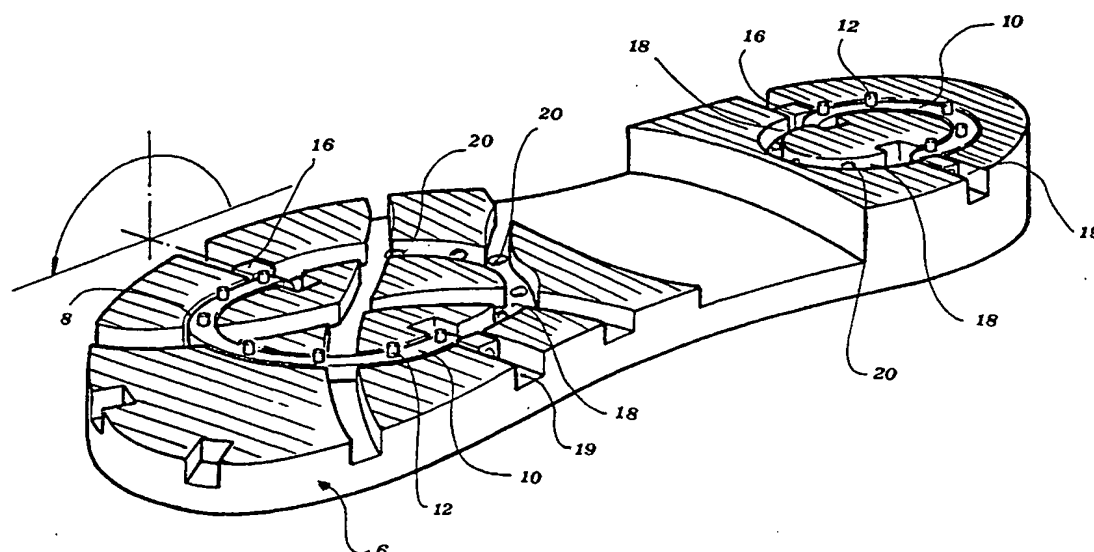




## INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification <sup>7</sup> : <b>A43C 15/08</b>	<b>A1</b>	(11) International Publication Number: <b>WO 00/04803</b> (43) International Publication Date: 3 February 2000 (03.02.00)
<p>(21) International Application Number: PCT/IT99/00232</p> <p>(22) International Filing Date: 22 July 1999 (22.07.99)</p> <p>(30) Priority Data: RM98A000489 23 July 1998 (23.07.98) IT</p> <p>(71) Applicant (for all designated States except US): AL.PI. S.N.C. DI BELFIGLIO LUCIANA &amp; C. [IT/IT]; Via Dante Alighieri, 215, I-62012 Civitanova Marche (IT).</p> <p>(72) Inventors; and (75) Inventors/Applicants (for US only): BIANCUCCI, Demetrio [IT/IT]; Via Dante Alighieri, 215, I-62012 Civitanova Marche (IT). BRASCA, Alfredo [IT/IT]; Via Civitanova, 79, I-62012 Civitanova Marche (IT).</p> <p>(74) Agent: SARPI, Maurizio; Studio Ferrario, Via Collina, 36, I-00187 Roma (IT).</p>		<p>(81) Designated States: AE, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZA, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).</p> <p><b>Published</b> With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</p>

(54) Title: SHOE SOLE PROVIDED WITH SPIKES OR HOBNAILED MEANS



## (57) Abstract

A shoe sole (6) provided with a number of rigid spikes or nails (12) on its face in contact with the ground, said spikes or nails being not fixedly secured to the sole but being able to pass from a first extracted position in contact with the ground to a second retracted position not interfering with the trampling surface because of the combination of folding spike support means which can be overturned with first and second grooves or recesses (20) formed in the sole within which such spike support means can be accommodated in the extracted and the rest positions.

Best Available Copy

**FOR THE PURPOSES OF INFORMATION ONLY**

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AL	Albania	ES	Spain	LS	Lesotho	SI	Slovenia
AM	Armenia	FI	Finland	LT	Lithuania	SK	Slovakia
AT	Austria	FR	France	LU	Luxembourg	SN	Senegal
AU	Australia	GA	Gabon	LV	Latvia	SZ	Swaziland
AZ	Azerbaijan	GB	United Kingdom	MC	Monaco	TD	Chad
BA	Bosnia and Herzegovina	GE	Georgia	MD	Republic of Moldova	TG	Togo
BB	Barbados	GH	Ghana	MG	Madagascar	TJ	Tajikistan
BE	Belgium	GN	Guinea	MK	The former Yugoslav	TM	Turkmenistan
BF	Burkina Faso	GR	Greece		Republic of Macedonia	TR	Turkey
BG	Bulgaria	HU	Hungary	ML	Mali	TT	Trinidad and Tobago
BJ	Benin	IE	Ireland	MN	Mongolia	UA	Ukraine
BR	Brazil	IL	Israel	MR	Mauritania	UG	Uganda
BY	Belarus	IS	Iceland	MW	Malawi	US	United States of America
CA	Canada	IT	Italy	MX	Mexico	UZ	Uzbekistan
CF	Central African Republic	JP	Japan	NE	Niger	VN	Viet Nam
CG	Congo	KE	Kenya	NL	Netherlands	YU	Yugoslavia
CH	Switzerland	KG	Kyrgyzstan	NO	Norway	ZW	Zimbabwe
CI	Côte d'Ivoire	KP	Democratic People's	NZ	New Zealand		
CM	Cameroon		Republic of Korea	PL	Poland		
CN	China	KR	Republic of Korea	PT	Portugal		
CU	Cuba	KZ	Kazakstan	RO	Romania		
CZ	Czech Republic	LC	Saint Lucia	RU	Russian Federation		
DE	Germany	LI	Liechtenstein	SD	Sudan		
DK	Denmark	LK	Sri Lanka	SE	Sweden		
EE	Estonia	LR	Liberia	SG	Singapore		

Shoe sole provided with spikes or hobnailed means

The present invention relates to the footwear-industry and, more specifically, the manufacturing of shoe soles provided for the use in cold countries and mountain-lands where ice and snow are steady.

5 Under such circumstances, it is well known how hard is for everyone to keep on one's feet. Resort to the so-called hobnailed shoes, that are technical, sturdy shoes having a right weight, may be made to avoid slipping. However, the use of such shoes is not  
10 compatible with the use of everyday shoes.

To avoid resorting to hobnailed shoes, sealskins or the like were once applied under the shoes to prevent the sole from contacting the frozen ground. Based on the same principle are rubber sheathes applied in a  
15 removable way to the shoes and carrying a number of nails or spikes on the face in contact with the ground.

Such a solution, however, has the serious drawback that the user must remove the sheathes away from the  
20 shoes whenever he goes into a residence or leaves the road to enter a building in order to avoid that the nails or spikes damage the floor. It is self-evident that the operation itself is troublesome and also implies the need for the user to carry the sheathes on  
25 him until he shall put on them again.

The present invention seeks to overcome the above-mentioned problems by providing a shoe sole having a number of rigid spikes or nails on its face in contact with the ground. Such spikes or nails are not fixedly  
5 secured to the sole but can pass from an extracted position in contact with the ground to a retracted position not interfering with the trampling surface because of the combination between folding spike support means which can be overturned and grooves or  
10 recesses formed in the sole within which such spike support means can be accommodated.

In a preferred embodiment this is achieved by providing spikes or nails fixedly secured to the face of the support means directed to the ground, such  
15 support means being formed of folded small bars shaped as brackets, arches or having any other geometrical shape, all of them being received within grooves or recesses formed in the thickness of the sole, as well as by also providing support means hinged at its one  
20 end and adapted to be overturned by 180° into corresponding grooves which are mirror-like symmetrical to the preceding grooves.

In the first position the spikes or nails project from the sole by a length enough to grip the ground. In the  
25 second or rest position, the spikes or nails projecting from the small bars are accommodated in suitable recesses formed at the bottom of the grooves accommodating the small bars so that the lower surface of the shoe sole becomes flat without any projection.

30

Further features and advantages of the invention will be more readily apparent from the following detailed description with reference to the accompanying drawings which show some preferred embodiments of the invention only by way of a not limiting example.

In the drawings:

Fig. 1 shows a perspective view of the face of a shoe sole according to the invention which is in contact with the ground and is provided with spikes or nails projecting from two small arches accommodated in grooves formed in the thickness of the sole both at the tip and the heel;

Fig. 2 is the same view as Fig. 1 where the two supports of the spikes are overturned by 180° to bring the spikes within the sole;

Figs. 3, 4 and 5 show different embodiments of the supports of the spikes.

With reference to Fig. 1, anti-slipping sole 6 provided with spikes according to the invention has a plurality of grooves 8 formed in the face of the sole in contact with the ground and capable of receiving small bars 10 with a suitable clearance, such small bars having any shape, for example, a circular arch. The small bars are preferably made of semirigid plastic material and carry a plurality of nails or

spikes 12 embedded by moulding therein and arranged all over their length.

Such small arch-shaped bars 10 are provided at both ends with two rotation pins which are snap-fitted into  
5        respective rotation sockets 16. Such sockets 16 are formed by rigid cubic blocks provided with a hinge hole and rigidly secured to a grooves 19 of the sole placed along the overturning axis of the small arch-shaped bar.

10       A second groove 18 is located in a mirror-like position with respect to the first groove 8 and differs from the same only because its bottom has recesses 20 for receiving the corresponding spikes 12 of the small arch-shaped bar 10 upon its overturning.

15       With regard to the foregoing the functional capacity of the anti-slipping device of the present invention should be appreciated. The user just needs to overturn the arch-shaped support bars to pass from a smooth sole to be used inside the buildings to a hobnailed  
20       sole to be used on slipping surfaces.

A preferred embodiment of the invention has been described above. It is self-evident, however, that a number of modifications and changes can be made by  
25       those skilled in the art without departing from the scope of the present invention as defined in the appended claims. For example, instead of being hinged within the groove, the supports of nails and spikes can be snap-fitted so as to be removed and applied

again rotated by 180° to make the face provided with nails or the smooth face alternately visible.

## Claims

1. An anti-slipping shoe sole, characterized by having a number of rigid spikes or nails on its face in contact with the ground, said spikes or nails being not fixedly secured to the sole but being able to pass  
5 from a first extracted position in contact with the ground to a second retracted position not interfering with the trampling surface because of the combination between folding spike support means which can be overturned and first and second grooves or recesses  
10 formed in the sole within which such spike support means can be accommodated in both positions.
2. The anti-slipping shoe sole of claim 1, characterized in that the spikes or nails are fixedly  
15 secured to the face of the support means directed to the ground, such support means being formed of folded small bars shaped as brackets, arches or having any other geometrical shape, all of them being received within grooves or recesses formed in the thickness of  
20 the sole.
3. The anti-slipping shoe sole of the preceding claims, characterized in that said support means are hinged at its one end into said grooves and/or  
25 recesses to be overturned by 180°, corresponding grooves which are mirror-like symmetrical to the preceding grooves being provided in the sole.



4. The anti-slipping shoe sole of the preceding claims, characterized in that the spikes or nails project from the sole in the first position by a length enough to grip the ground.

5

5. The anti-slipping shoe sole of the preceding claims, characterized in that in the second retracted or rest position the spikes or nails projecting from the small bars are accommodated in suitable recesses formed at the bottom of the grooves accommodating the small bars so that the lower surface of the shoe sole becomes flat without any projection.

10

6. The anti-slipping shoe sole of the preceding claims, characterized in that instead of being hinged within the groove at their ends, said supports can be snap-fitted into the grooves corresponding to the first and second positions after having been removed and overturned by the user.

15

1/3

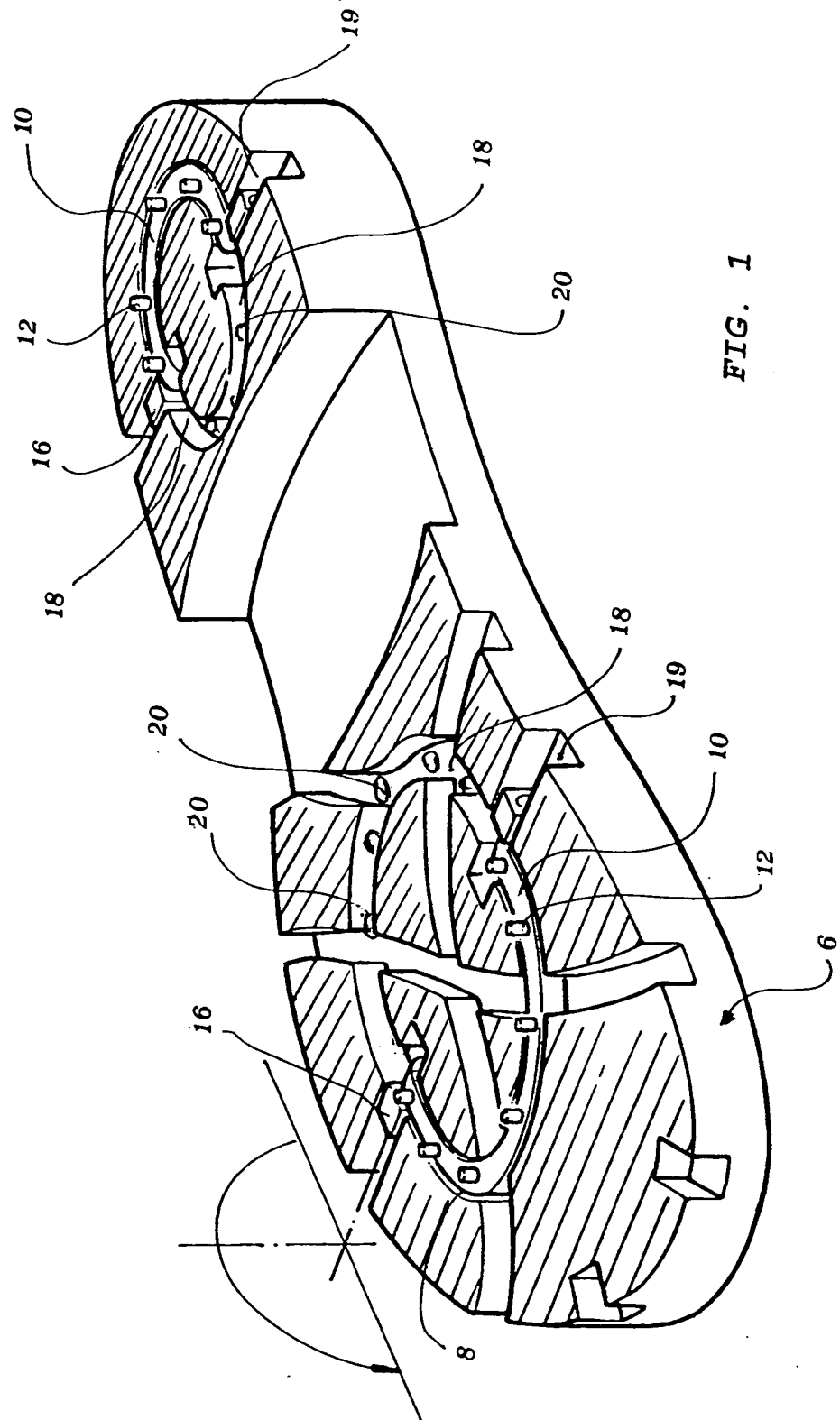


FIG. 1

2/3

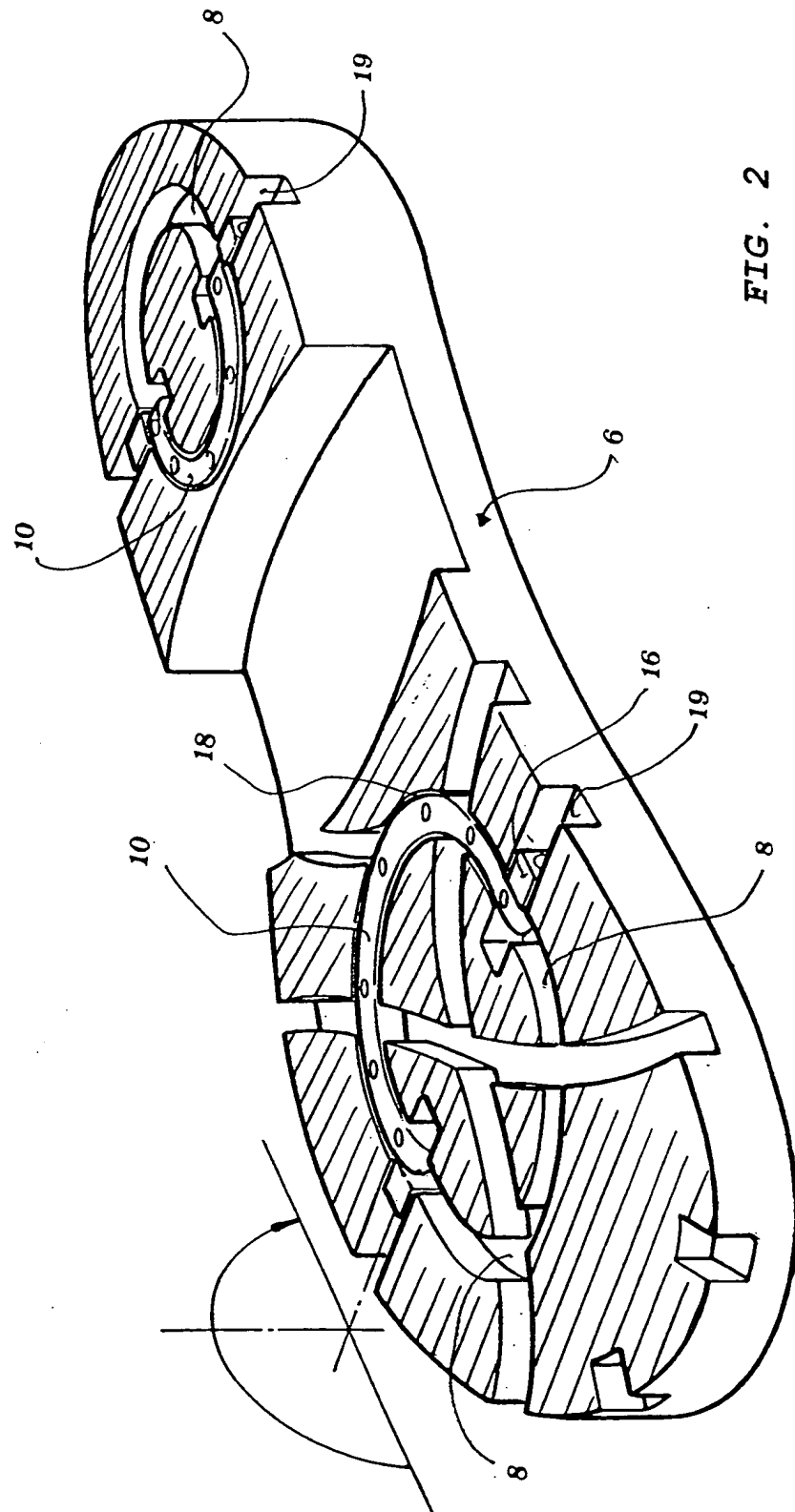


FIG. 2

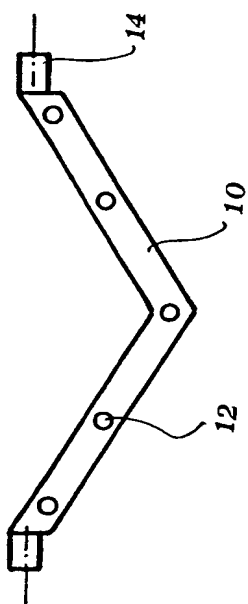


FIG. 3

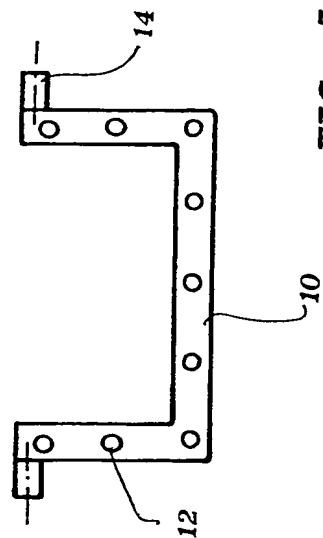


FIG. 5

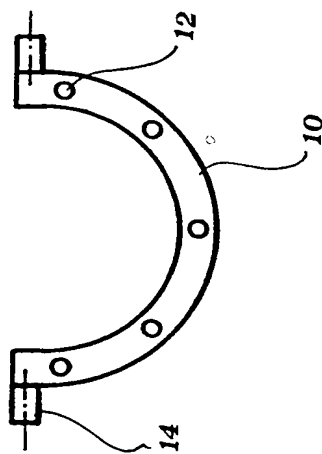


FIG. 4

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/IT 99/00232

**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 A43C15/08

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A43C

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	DATABASE WPI Section PQ, Week 9742 Derwent Publications Ltd., London, GB; Class P22, AN 1997-455739 XP002123726 & RU 2 075 303 A (NOVOGRUDSKIJ ARKADIJ NIKOLAEVI), 20 March 1997 (1997-03-20)	1, 2, 4, 5
A	abstract; figures ---	3
X	US 5 269 080 A (DAVIS CARL C) 14 December 1993 (1993-12-14) claim 1; figures --- -/--	1, 2, 4, 5

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

\* Special categories of cited documents :

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier document but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.

"&" document member of the same patent family

Date of the actual completion of the international search

24 November 1999

Date of mailing of the international search report

07/12/1999

Name and mailing address of the ISA

European Patent Office, P.B. 5818 Patentlaan 2  
NL - 2280 HV Rijswijk  
Tel. (+31-70) 340-2040, Tx. 31 651 epo nl,  
Fax: (+31-70) 340-3016

Authorized officer

van Elk, M

# INTERNATIONAL SEARCH REPORT

International Application No

PCT/IT 99/00232

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	<p>DATABASE WPI  Section PQ, Week 9149  Derwent Publications Ltd., London, GB;  Class P22, AN 1991-359829  XP002123727  &amp; SU 1 639 602 A (BILYK, E.G.; KOLDOVA,  V.A.; RIBALCHENK, T.A.),  7 April 1991 (1991-04-07)  abstract; figures</p>	1-5
A	<p>DE 877 870 C (KAMPMANN, WALTER)  28 May 1953 (1953-05-28)  the whole document</p>	

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

PCT/IT 99/00232

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
RU 2075303	A	20-03-1997	NONE
US 5269080	A	14-12-1993	NONE
SU 1639602	A	07-04-1991	NONE
DE 877870	C		NONE

**This Page Blank (uspto)**